

NOTEWORTHY SPECIES FROM MEXICO AND ADJACENT UNITED STATES, II

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Amaranthus arenicola sp. nov.

Herba erecta dioica annua; caulibus pallidis 2–10 dm. altis simplicibus vel sparse ramosis; ramis strictis vel ascendentibus; lamina folii glabra lanceolata vel oblonga vel ovata 2–5 cm. longa 5–20 mm. lata infra medium latiore, apice acuta vel obtusiuscula, basi in petiolum pallidum gracilem 5–40 mm. longum abrupte contracta; inflorescentia terminali cymas abundantissimas composita spicata elongata 5–16 mm. crassa 1–4 dm. longa praesertim infra medium plus minusve interrupta ebracteata vel bracteis foliaceis sparsissime ornata; cymis latis ramosis conspicue bracteosis; bracteis ramorum cymis ovatis late sessilibus apice acutis cuspidatis, costa viridi paullo incrassata apice in acumen protracta, bracteis alibi membranacea; bracteis floris feminei obovatis, apice rotundis vel emarginatis rare cuspidatis fere ad altitudinem loborum perianthii attingentibus; lobis perianthii feminei pentameris 2.5–3 mm. longis infra medium in unguem ad 0.3 mm. latum abrupte contractis, lamina ad 1–1.8 mm. lata apice rotundata vel emarginata rariter cuspidata; utriculis paullo compressis 2–2.5 mm. longis circumscissilibus griseis saepe plus minusve verrucosis; stylis 3 gracilibus; seminibus laevis nigro-brunnescentibus nitidis biconvexis 1.3 mm. diametro; bracteis floris masculi lanceo-ellipticalibus acutis cuspidatis perianthium haud superantibus; lobis perianthii masculi pentameris late lanceolatis medium versus vel infra medium latioribus 1.3 mm. latis 2.5–3 mm. longis acutis cuspidatis; filamentis 5 filiformis ca. 1 mm. longis; antheris 5 ad 2 mm. longis.

KANSAS: sandhills, Hamilton County, 1895, *Hitchcock* 428A (TYPE, Gray Herb.); sandy soil, southwestern Kansas, Aug. 3, 1895, *Hitchcock* 609.

COLORADO: South Fork of the Platte, 1856, *H. Engelmann*; indefinite, 1861, *Parry* 323; Ft. Lupton, Weld. Co., 1914, *Johnston* 275; Gilcrest, Weld Co., 1916, *Johnston* 275A.

OKLAHOMA: bottom of Cimarron River, Cimarron Co., 1936, *Demaree* 13306.

TEXAS: Limpia Canyon, 8.7 miles northeast of Ft. Davis, 1942, *Cory* 40520.

INDEFINITE: Powell Colorado Exploring Exped., 1868, no. 509; Upper Missouri River, *Hayden*; sandhills, 1862, *E. Hall*.

A species most closely related to *A. myrianthus* Standley of northeastern Mexico and southern Texas. The latter is a loosely and much branched plant with usually sprawling branches and has the bracts subtending the female flowers broad, cuspidate, and distinctly shorter than the perianth lobes. The plant here described grows in sandy places on the high plains. It has passed as *A. Torreyi* Gray and is treated under that name in Standley's revision of the genus, No. Am. Fl. 21: 107 (1917). The name "*A. Torreyi* Gray," however, properly belongs to a very different plant growing along the Mexican boundary. Cf. Johnston, Jour. Arnold Arb. 25: 155 (1944).

Portulaca parvula Gray, Proc. Am. Acad. 22: 274 (1887).

Plant prostrate or ascending, with a slender annual root; stems slender, 1–2 mm. thick, 3–15 cm. long, loosely branched; leaves 3–13 mm. long, 0.5–2 mm. broad, succulent, somewhat compressed; leaf axils with white hairs 3–7 mm. long; inflorescence terminal, a capitate cluster of 2–10 flowers, after falling of involucre bracts 3–6 mm. in diameter; involucre bracts 3–8 mm. long; sepals becoming reddish, 2.5 mm. long; petals yellow, orange, or bronze, 2–2.5 mm. long; capsule 1.5–2 mm. thick, basal portion saucer-shaped, with stipe 1–1.5 mm. long; seeds 3–3.5 mm. long, brownish at first but becoming black when mature, covered with minute crowded flattened stellate roughenings.

COAHUILA: Tanque Colorado, southeast of Zacatosa, common in shelter of bushes on red dunes, plant prostrate, light green, leaves terete and succulent, small flower orange, *Johnston* 8658.

CHIHUAHUA: Piramide, local on gravelly places at base of rock masses, *Johnston* 8155; Los Medanos, 1935, *LeSueur* 254; Sierra Santa Eulalia, fl. yellow, Aug. 18, 1885, *Pringle* 543 (TYPE).

AGUACALIENTES: Aguacalientes, 1930, *Rose & Painter* 7737.

TEXAS: without locality, *Wright* 31 in part and 873 in part.

ARIZONA: El Sauz, Cochise Co., *Hayes* 72.

OKLAHOMA: Kenton, bed of Cimarron River, 1936, *Demaree* 13299.

This species ranges in sandy places from western Texas and western Oklahoma to southeastern Arizona and south in northern Mexico to Aguacalientes. Its closest relative is *P. halimoides*, which occurs in the West Indies, in northern South America, and along the Pacific coast from Costa Rica north into Sonora and Baja California. The two species *P. parvula* and *P. halimoides* are set off from other congeners in Mexico and the United States by their small yellow, orange, or bronzy petals and their small, conspicuously stiped fruit. Their petals measure 2–3 mm. long. After dehiscence and shedding of seeds, the persisting saucer-shaped base of the capsule is only 1.5–2 mm. in diameter. Its stipe, however, is well developed and 1–1.5 mm. long.

As originally proposed by Gray, *P. parvula* was a mixture of two very distinct species, *P. parvula* as here redefined and *P. mundula* Jtn. However, judging from the specimens he identified and from details in his description, as well as from his choice of specific epithet, it seems clear that Gray was chiefly interested in the slender annual plant with small yellow flowers and stiped capsules to which I have restricted his binomial. Among his original suite of specimens only *Pringle* 543 and portions of *Wright* 31 and 873 belong to *P. parvula* as here delimited. The *Pringle* specimen, from the Sierra Santa Eulalia, Chihuahua, is taken as type. The *Wright* collections are mixtures, no. 31 consisting of *P. parvula* and *P. suffrutescens* and no. 873 of *P. parvula* and *P. mundula*. They appear to have been collected in the area between the Davis Mts. and the Coppermines, most likely somewhere along the old military road between the Davis Mts. and El Paso, in trans-Pecos Texas. Among Gray's material to be excluded from *P. parvula* are also *Fendler* 73 and *Schaffner* 772. The *Fendler* collection, recently accepted as the type of *P. parvula* by Wilson, No. Am. Fl. 21: 334 (1932), though labeled as from New Mexico, according to the

collector's field notes, actually originated in Kansas. It represents *P. mundula*. The Schaffner plant, from San Luis Potosi, has small flowers and small capsules, but the stipe of the fruit is short and the root is not slender and annual but fleshy and evidently perennial. It may possibly represent an undescribed species, but in any case cannot be accommodated in *P. parvula*.

Subsequent to Gray's publication of *P. parvula*, the species was accepted by Coulter, Contr. U. S. Nat. Herb. 2: 32 (1891), and by Robinson, Synop. Fl. 1: 264 (1897). These authors, however, repeated Gray's description and give no evidence of having examined the species critically. Wootton & Standley, Contr. U. S. Nat. Herb. 19: 230 (1915), however, delimited *P. parvula* in the sense I have accepted and also provided a key by which it can be separated from other species of *Portulaca* found in southwestern United States and northern Mexico. Wilson, No. Am. Fl. 21: 334 (1932), and Poellnitz, Fedde Repert. 37: 280 (1934), applied the name to the purple-flowered species I call *P. mundula*. Surprisingly, they have no concept for the yellow-flowered annual, the relative of *P. halimoides*, which should be called *P. parvula*. Kearney & Peebles, Fl. Pl. Arizona 302 (1942), apparently followed Wilson. The Arizonan plant they call "*P. parvula*" has purple petals 3–4 mm. long. It is conspecific with the New Mexican plant that Wootton & Standley called *P. pilosa*. Its correct name, however, is *P. mundula*.

Portulaca mundula, sp. nov.

Planta herbacea foliosa e radice palari non rariter incrassata ut videtur saepissime annua erumpens; caulibus 3–6, prostratis vel laxe decumbentibus vel laxe ascendentibus, 5–15 cm. longis, supra medium ascendenter ramosis, succulentis, internodiis valde abbreviatis 1–5 mm. longis; foliis carnosis, alternis, saepe numerosissimis et congestis, 5–15 mm. longis 0.5–1.5 mm. latis, linearibus vel oblanceo-linearibus ascendentibus; pilis axillae conspicuis languinosis crispis saepe candidis quam foliis brevioribus vel longioribus saepe 5–7 mm. longis; floribus terminalibus 2–8 in capitulos villosos aggregatis subsessilibus; foliis involucri 6–10 linearibus 5–12 mm. longis succulentis; calyce supra rupturam saepe ca. 4 mm. rariter ad 6 mm. longo; lobis triangularibus vel triangularo-oblanceolatis; petalis purpureis obovatis saepe ad 6 mm. vel rariter ad 7.5 mm. longis 3–4.5 mm. latis, apice retusis; staminibus saepe 10–15 rariter ad 30; stylis 3–5 oblanceolatis ca. 1.8 mm. longis; capsula maturitate in $\frac{1}{4}$ altitudine circumscisse ovato-globosa, parte superiori nitida alte hemispherica cum calyce corolla staminibus cohaerentibus emaradis vestita, parte inferiori 2.5–3.5 (saepe ad 3) mm. diametro brevissime stipitata; seminibus nigris 0.3–0.5 mm. diametro stellato-tuberculatis.

COAHUILA: Rancho Agua Dulce, Wynd & Mueller 403; Santa Anna Canyon, 1936, Marsh 457; Sierra Santa Rosa, July 27, 1938, Marsh 1543; Sierra Madera, Canon Charreteras, wet ground near tineja, fl. purple, Johnston 8945A; near Sacramento, gravelly wash, fl. purple, Johnston 7088 (TYPE, Gray Herb.); Chojo Grande, 27 miles south of Saltillo, 1904, Palmer 383; Sierra Hechiceros, Canon Indio Felipe, crevices at base of cliff, Stewart 291; near Santa Elena, Sierra Cruces, along arroyo, fl. purple, Stewart 601; Valle Delicias, near Rancho La Boteca, frequent on limestone slope, fl. purplish, Stewart 2933.

CHIHUAHUA: Sierra San Carlos, gravelly slope below cliffs, fl. purple, *Johnston & Muller* 45; Piramide, gravelly soil at base of rock masses, *Johnston* 8155A; 7.5 miles south of Piramide, silty flat, prostrate, *Johnston* 8103; Sierra Santa Eulalia, fl. carmine, 6-8 in. broad, Aug. 18, 1885, *Pringle* 334.

TEXAS: Alpine, *Warnock* 121; 25 miles so. of Marathon, 1936, *Hinckley*; 18 miles so. of Marathon, 1933, *Cory* 6901; 20 miles SSE. of Kent, 1943, *Waterfall* 5415; 7 miles north of Van Horne, *Waterfall* 4661; Guadalupe Mts., Pine Springs Canyon, *Waterfall* 5242; Melon, Frio Co., 1941, *Tharp*; Mill Creek, 1843, *Lindheimer*; near Bracken, Bexar Co., *Groth* 247 & 233; Laredo, 1879, *Palmer* 2141.

OKLAHOMA: Lincoln County, 1895, *Blankinship*; Sapulpa, 1894, *Bush* 31; Alva, 1913, *Stevens* 2884; Pawhuska, 1913, *Stevens* 2027.

KANSAS: Allen County, 1896, *Hitchcock* 630; sandhills south of the crossing of the Arkansas River, fl. red, size of a half-dime, Sept. 3, 1847, *Fendler* 73.

MISSOURI: Cockrell, *Bush* 6486; Redings Mill, *Palmer* 33157; Garsney, 1898, *Bush* 353; Vale, 1908, *Bush* 5238.

In northern Mexico this species grows in gravel along sunny arroyos or on gravelly places on open slopes. From Coahuila and Chihuahua it ranges in its typical form north into trans-Pecos Texas. Specimens from northern Texas, Oklahoma, Kansas, and Missouri may differ slightly from more southern forms. Their flowers average a bit smaller while the stellate roughenings on their seeds are less commonly tuberculate.

The species has been confused with *P. parvula* Gray and *P. pilosa* L. Its relation with *P. parvula* have already been discussed. A consideration of *P. pilosa* shows it distinct from that species also. The name *P. pilosa* L., Sp. Pl. 445 (1753), is ultimately based on plants originating on the island of Curaçao, in the Dutch West Indies off the north coast of Venezuela. Linnaeus founded his species on descriptions and illustrations given in the published works of Royen, Commelin, Herman, and Plunkenet. These authors treated plants, cultivated in the gardens at Amsterdam and Leyden, said to have originated in Curaçao. The illustrations and comments by Commelin, Hort. Med. Amstelodam. 9, t. 5 (1697), and Herman, Par. Batavus 215 cum fig. (1705), are especially complete and clear and leave little doubt as to the identity of the plant properly called *P. pilosa* L. In Wilson's treatment of the genus, No. Am. Fl. 21: 334 (1932), it keys out to *P. pilosa* and *P. poliosperma*. Typical *P. pilosa* is a plant of Curaçao and so also is the variety, *P. pilosa* β , published by Linnaeus. The latter, based upon illustrations by Herman and Plukenet, was subsequently renamed *P. setacea* Haw. (1803) and *P. pilosa* var. *setacea* DC. (1828). It appears to be the plant later described as *P. venezuelensis* Urban (1907). Both of the Linnaean plants are tropical species from Curaçao and not conspecific with the plants of northern Mexico or southwestern United States.

Lippia lycioides (Cham.) Steud. Nom. Bot., ed. 2, 2: 54 (1841).

Aloysia lycioides Cham. Linnaea 7: 237 (1832).

Lippia ligustrina of authors.

This well-marked species of *Lippia* ranges in the United States from Texas to southeastern Arizona and in Mexico south to the states of Hidalgo, Puebla, Durango, and Sonora, and then again reappears in Bolivia (Cochabamba), Paraguay, and Brazil (Paraná) and extends

southward to the states of Buenos Aires, La Pampa, and Mendoza in Argentina. It is one of the xerophytic species shared by geographically remote areas in North and South America.

For a generation this shrub has been called *Lippia ligustrina* (Lag.) Britton. That name is based upon *Verbena ligustrina* Lagasca, Gen. et. Sp. Nov. 18 (1816), which was described as follows: "242 *Verbena ligustrina*: foliis ovatis, oblongisque scabris margine revolutis integerrimis: spicis cylindraceis terminalibus. Hab. in *Portu desiderato* b (V. S.)." It is to be noted that the type was collected (probably by Nees) at Puerto Deseado, Terr. Santa Cruz, in southern Patagonia, and hence at a locality far to the south of the known range of our species in Argentina, and furthermore in a region in which it could hardly be expected. The scabrid leaves and terminal spikes of Lagasca's plant are not those of our *Lippia*. All details in the description do apply to one of the shrubby Argentine Verbenas related to *V. aspera* Gill. & Hook., which does grow at the Patagonian port. The name actually belongs to that species of *Verbena* and not to the subtropical *Lippia* shared by North and South America.

The name *Lippia lycioides*, based upon *Aloysia lycioides* Chamisso, is founded upon collections made by Sellow in southern Brazil. In treating the species Schauer, DC. Prodr. 11: 574 (1847), unfortunately cited the name *Verbena ligustrina* Lag. as one of its synonyms. Without verifying this reference, first Britton, Trans. N. Y. Acad. 9: 181 (1890), and later Kuntze, Rev. Gen. 3²: 252 (1898), doing purely library botany, seized upon the incorrect synonym and launched the name "*Lippia ligustrina*" as a new appellation for our species. It was based upon a misidentification, taxonomically does not belong to our *Lippia*, and should be abandoned.

Tecoma Tronodora (Loes.), comb. nov.

Stenolobium Tronodora Loes. in Fedde, Repert. 16: 210 (1919).

Stenolobium incisum Rose & Standley, Contr. U. S. Nat. Herb. 16: 174 (1913).

Tecoma incisa (Rose & Standl.) Johnston, Jour. Arnold Arb. 21: 264 (1940); not Sweet (1827).

Tecoma stans var. *angustatum* Rehder, Mitt. Deutsch. Dendr. Ges. 1915: 227 (1915).

The name *Tecoma incisa* (Rose & Standl.) Johnston, being invalid because of an earlier homonym, a new name, under *Tecoma*, is needed for this widely distributed shrub of northern Mexico and adjoining United States. The name to be taken up for the plant, *Tecoma Tronodora*, embodies the vernacular name which I have found to be in general use and applied exclusively to this particular species in Coahuila and Chihuahua.

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